

REMARKS

Claims 1-15 are pending in this application. Claims 1, 2, 7 and 8 are amended and new claims 12-15 are added. No new matter is added. For instance, amended claims 1, 2, 7 and 8 are supported by the original claims and the application as filed. Also, new claims 12-15 are supported by the present specification. Thus, no new matter has been added.

Reconsideration of this application, as amended, is respectfully requested.

Interview Summary

Applicants appreciate the courtesies extended by the Examiner during the telephone interview conducted on February 22, 2010. During the interview, Applicants' representative requested the Examiner to provide the Giesa reference. In response, the Examiner faxed such reference on February 23, 2010.

Issues under 35 U.S.C. §§ 102(a) and 102(b)

(A) Claims 1, 4-8 and 11 are rejected under 35 U.S.C. §102(a) as being anticipated by Nakano et al. (Org. Lett. 2004, 6, 2373-2376) (hereafter "Nakano"). This rejection is respectfully traversed.

While not conceding to the Examiner's rejection based on the Nakano reference, in an effort to advance prosecution only, claim 1 and claims dependent thereon are amended to remove the pyridine and thiophene rings. By way of the present amendment, the present invention is not anticipated by the Nakano reference.

Further, Applicants respectfully submit that the Nakano reference is not an effective prior art reference against at least new claims 12-14, which are supported by Japanese Priority Application No. JP 2004-065446. It is seen that the claimed priority date (March 9, 2004) is earlier than the publication date of the Nakano (April 20, 2004). Although the exact publication date of Nakano is not currently clear, since this reference is marked "Received April 20, 2004,"

Applicants can reasonably conclude that the publication date is no earlier than April 20, 2004. Thus, Applicants submit herewith a Certified English translation of Japanese Priority Application No. JP 2004-065446, wherein new claims 12-14 find support. By way of the present submission, the rejection based on the Nakano reference should be withdrawn.

As discussed above, the §102(a) rejection is moot. Reconsideration and withdrawal thereof are accordingly requested.

(B) Claims 2, 5 and 9 are rejected under 35 U.S.C. §102(b) as being anticipated by Wan et al. (Eur. J. Org. Chem. 2001, 3485-3490) (hereafter "Wan"). This rejection is respectfully traversed.

The Examiner asserts at page 3 of the Office Action that the Wan reference discloses aspects of claims 2, 5 and 9 represented by formula (4) where c is 0; b₁, b₂, m₁, and m₂ are 1; R²-R⁵ are hydrogen; Z¹, Y¹, and Y² are benzene rings; and R⁶ is formula (2) where E is a substituted silyl group.

Amended claim 2 recites Z¹, Y¹, and Y² being a para-phenylene group. Such a para-phenylene group is clearly distinct from the ortho-phenylene group of Wan. Thus, by way of the present amendments, claims 2, 5 and 9 are not anticipated by the Wan reference. New claim 15 is similarly distinct.

Therefore, the §102(b) rejection is moot. Reconsideration and withdrawal thereof are accordingly requested.

Issues under 35 U.S.C. § 103(a)

(A) Claims 1, 5-7 and 11 are rejected under 35 U.S.C. §103(a) as being obvious over Utesch et al. (Org. Biomol. Chem. 2003, 1, 237-239) (hereafter "Utesch") in view of Giesa et al. (Polymer International 1994, 33, 43-60) (hereafter "Giesa"). Also, Claims 4 and 8 are rejected under 35 U.S.C. §103(a) as being obvious over Utesch in view of Giesa as applied to claims 1, 5-7, and 11 above, and further in view of Hwang et al. (J. Am. Chem. Soc. 2003, 125, 11241-11248) (hereafter "Hwang"). These rejections are respectfully traversed.

Utesch fails to disclose or suggest the features wherein R^1 is hydrogen and R^2 - R^5 recited in claim 1 are hydrogen or alkyl groups of 1 to 10 carbons. Also, Utesch fails to disclose or suggest the claimed A and D groups, which independently represent a naphthalene ring, an anthracene ring, a phenanthrene group, a phenarene ring, a fluorene ring, a triphenylene ring, a pyrene ring, a perylene ring, a pyrimidine ring, a pyridazine ring, a pyrazine ring, a furan ring, a pyrrole ring, a pyrazole ring, an imidazole ring, a benzothiadiazole ring, a thieno[3,4-b]pyrazine ring, a furo[3,4-b]pyrazine ring or a 6H-pyrrolo[3,4-b]pyrazine ring. Rather, Utesch discloses only a single benzene ring corresponding to the claimed A or D groups.

Further, the deficiencies of Utesch cannot be cured by Giesa since Giesa also fails to disclose or suggest at least the above features. Furthermore, the compound of Giesa differs in structure from the claimed π -conjugated aromatic ring-containing compounds. Thus, even if Utesch were to be combined with Giesa, the combination thereof could not achieve the claimed invention.

Separately, to supplement the claimed R^1 being H and A and D being heteroaryl, the Examiner cites the Hwang reference. However, Hwang focuses on the fact that 1,1-dibromo-1-alkenes can be amendable to further chemical functionalization or modification. In other words, Hwang must always use starting materials of 1,1-dibromo-1-alkenes. See pages 11231-11243 of Hwang. However, the claimed compounds of claims 4 and 8 have nothing to do with such dibromo alkene group-containing compounds. Therefore, one of skill in the art would not even combine Utesch with Giesa and Hwang.

Therefore, the §103(a) rejections based on Utesch, Giesa and Hwang are moot. Reconsideration and withdrawal thereof are accordingly requested.

(B) Claims 2, 9 and 11 are rejected under 35 U.S.C. §103(a) as being obvious over Edelmann et al. (Chimia 2001, 55, 132-138) (hereafter "Edelmann") in view of Giesa and Hwang. This rejection is respectfully traversed.

Applicants respectfully submit that Edelmann fails to disclose or suggest the features wherein R^6 is hydrogen and R^2 - R^5 are hydrogen or alkyl groups of 1 to 10 carbons as recited in claim 2 of the present invention. Also, the compounds in Fig. 7 of Edelmann fail to disclose or

suggest the claimed Y^1 and Y^2 groups that independently represent a para-phenylene group, a naphthalene ring, an anthracene ring, a phenanthrene group, a phenarene ring, a fluorene ring, a triphenylene ring, a pyrene ring, a perylene ring, a pyridine ring, a pyrimidine ring, a pyridazine ring, a pyrazine ring, a furan ring, a pyrrole ring, a pyrazole ring, an imidazole ring, a thiophene ring, a benzothiadiazole ring, a thieno[3,4-b]pyrazine ring, a furo[3,4-b]pyrazine ring or a 6H-pyrrolo[3,4-b]pyrazine ring. Indeed, Edelmann discloses the heteroaryl spacer as an aromatic group, which corresponds to the claimed Z^1 group. Accordingly, the present invention is patentably distinct over Edelmann.

The deficiencies of Edelmann cannot be cured by Giesa and Hwang for the same reasons as in the above (A).

Therefore, the §103(a) rejection based on Edelmann, Giesa and Hwang is moot. Reconsideration and withdrawal thereof are accordingly requested.

(C) Claims 3 and 10 are rejected under 35 U.S.C. §103(a) as being obvious over Edelmann in view of Giesa and Hwang as applied to claims 2, 9, and 11 above, and further in view of Kaafarani et al. (J. Org. Chem. 2003, 68, 5377-5380) (hereafter "Kaafarani"). This rejection is respectfully traversed.

As explained above, Edelmann fails to disclose or suggest the claimed R^6 being hydrogen and R^2 - R^5 being hydrogen or alkyl groups of 1 to 10 carbons as recited in claim 3 of the present invention. Also, Edelmann fails to disclose or suggest the claimed Y^1 and Y^2 groups as explained above. Further, Edelmann remains silent about the claimed acetylene groups connected to the central core group, as acknowledged by the Examiner at page 8, section no. 27 of the Office Action.

Regardless, the deficiencies of Edelmann cannot be cured by Giesa and Hwang for the same reasons as in the above (A). Further, as admitted by the Examiner, Edelmann in view of Giesa and Hwang do not teach the claimed acetylene groups connected to the central core group. Further, given the fact that Kaafarani teaches a cross-conjugated enynes and Hwang teaches a π -conjugation, there is no reason, motivation or suggestion to combine these references.

Therefore, the §103(a) rejection based on Edelman, Giesa, Hwang and Kaafarani is moot. Reconsideration and withdrawal thereof are accordingly requested.

(D) Finally, Applicants respectfully submit that the Examiner improperly employs hindsight reconstruction. The only basis for combining the cited references is that of hindsight reconstruction of Applicants' invention based solely on Applicants' disclosure. That is, the only basis to pick and choose the various features from each of the cited references is found nowhere but in Applicant's disclosure. Case law supports this argument.

For example, the Court of Appeals for the Federal Circuit has stated that to imbue one of ordinary skill in the art with knowledge of the invention in suit, when no prior art reference or references of record convey or suggest that knowledge, is to fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher. One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to depreciate the claimed invention. In re Fine, 5 USPQ2d 1596 (Fed. Cir. 1988) (quoting W.L. Gore Associates Inc. v. Garlock, Inc., 220 USPQ 303 (Fed. Cir. 1983)), Accord Grain Processing Corp. v. American Maize Prod. Co., 5 USPQ2d 1788 (Fed. Cir. 1988) ("care must be taken to avoid hindsight reconstruction by using the patent in suit as a guide through the maze of prior art references, combining the right references in the right way so as to achieve the result of the claims in suit"); Panduit Corp. v. Dennison Mfg. Co., 1 USPQ2d 1593 (Fed. Cir. 1987), cert. denied, 481 U.S. 1052 (1987); Orthopedic Equipment Co. v. United States, 217 USPQ 193 (Fed. Cir. 1983).

Also, each of the cited references fail to show structural similarity and the requisite disclosure to modify specific structural changes. Specifically, there is no teaching, suggestion or motivation (TSM) or other articulated rationale provided to one of skill to change the cited compounds in a manner necessary to arrive at the claimed compound. In connection with this, Takeda Chemical Industries Ltd. v. Alphapharm Pty. Ltd., 83 USPQ2d 1169 has stated that a *prima facie* case of obviousness for claimed chemical compound requires showing of structural similarity between prior art compound and claimed compound, as well as showing that prior art would have suggested making specific molecular changes necessary to achieve the claimed invention.

Further, the claimed invention is not obvious even under a *KSR* standard (a thorough analysis under *Graham v. John Deere* properly controls the obviousness inquiry, instead of using TSM test). Specifically, the claimed invention is distinguishable from the cited art in terms of 1) scope and content of the cited art, 2) different chemical structure based on 3) those of skill in the art, as explained at pages 15-18 of this Reply.

As the MPEP directs, all the claim limitations must be taught or suggested by the prior art to establish a *prima facie* case of obviousness. See MPEP § 2143.03. In view of the fact that the cited references fail to teach or fairly suggest all of the claimed features, a *prima facie* case of obviousness cannot be said to exist.

In light of the above remarks, since independent claims 1-3 of the present application is believed to overcome the prior art rejections, the dependent claims therefrom are also believed to address the same rejections. Therefore, the Examiner is respectfully requested to withdraw these rejections.

Conclusion

In view of the above remarks, Applicants believe that the present application is in condition for allowance.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Craig A. McRobbie, Registration No. 42,874 at the telephone number of the undersigned below to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Director is hereby authorized in this, concurrent, and future replies to charge any fees required during the pendency of the above-identified application or credit any overpayment to Deposit Account No. 02-2448.

Dated: July 8, 2010

Respectfully submitted,

By 

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Attachment: Certified English Translation of Japanese Priority Application No. JP2004-065446.